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MODIFICATION OF THE ARTIFICIAL LEECH.

By FRANCIS B. LORING, M.D., WASHINGTON D. C.,

Instructor of Ophthalmology and Otology in National Medical College, Surgeon-in-Charge Washington Eye and Ear Infirmary, one of the Consulting Ophthalmic and Aural Surgeons to the Princeton *Evidence* Hospital, etc., etc.

THE principal faults in the cutting apparatus of the leech introduced by Baron Heurteloup, are due to the facts that the "drill," being worked by a *lateral* motion, is apt to produce a rough and uneven incision, often leading to a subsequent scar, and that after a short period of use the set-screw, regulating the extent of the knife exposed (and the consequent depth of the incision), is apt to become so worn that it is no longer safe to apply the motion directly with the fingers—discarding the string entirely, as I have been accustomed to, in cases where I was particularly anxious to avoid permanent scars. So frequently, however, has this occurred, even with the greatest care, that I have for the last few years adopted the plan of first having a natural leech applied and then putting the cylinder directly over the recent bite. This, however, is not always convenient, and is sometimes objected to by the patient, so that I venture to hope that the instrument now described will prove useful, particularly in those places where leeches are not always attainable. The first change necessary was to reduce the lateral motion of the string or cord to a vertical one, and this was accomplished by fixing the drill in a cylinder, the motion to which was given by two lateral pistons, joined at their extremities to a disk of the same diameter as the enclosing cylinder. A perforation was then made

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through the centre of the disk, in which was ground a female screw, and through this the drill, armed with a spiral screw, was led, so that the revolution was made in very much the same manner as the instrument now shown in the shops, by simply moving the piston, as in the common syringe. The amount of knife exposed is regulated, not by a set-screw, but by a sheath that screws over the cutting-edge of the drill, and is an inch in length, so that it cannot yield to any force of pressure that can be applied to it. This sheath is the same as that in the other instrument, with the exception that instead of being beveled at the extremity it is perfectly even, and is armed with a circle of thick plate-glass. This glass is of the same diameter as that of the exhausting cylinder, and serves two purposes: First, in the original Heurteloup the extremity is of brass, and naturally obscures most of the tissues from the eye of the operator, while they are now directly in sight, even to the edge of the drill; in the second place, on removing the instrument from the temple, the incision is found to be *directly in the centre* of a ring formed by the pressure of the glass against the skin, so that the air-tight exhausting cylinder has to be placed against the outer circle, which it exactly fits, to ensure a rapid and speedy flow of blood. For any one that has been in the habit of using the instrument, must have been troubled by the difficulty of having a deep incision strangulated by the drawing in and compression of the tissues, particularly when in a flabby and relaxed condition, and this difficulty I have always found to be increased when the incision was not directly in the centre, from the pressure of the wound against the walls of the glass cylinder. As the end of the piston with its washers fills the mouth of the receiver when it is first applied to the temple, it is often most difficult to place it directly over the centre of the incision, and the circle from the pressure of the glass is therefore a most valuable and reliable guide. By a very simple mechanism the glass disk may be unscrewed, and various sizes corresponding to different cylinders easily fitted. I have now had the instrument in use for some little time, both in private practice and in the hospi-

tals, and I find that patients complain but very slightly of the pain of its application, and that in no case has a scar resulted. This is due, doubtless, to the fact that the incision produced is clear and even, there being no lateral traction with a plowing up of the tissues on one side, and that the cut being directly in the centre, the blood flowed from the entire circle, so that one part of it was not more elevated than the other by the force of the vacuum. I am in the habit of allowing the blood to follow the washer very closely, and to regulate its flow by the depth of the incision, and not by increased suction. The wound is dressed with vaseline or simple cerate, and a piece of plaster applied some few hours *after* the removal of the cylinder.

The instrument weighs but three ounces, and is contained in a case measuring six inches by three; it cannot easily get out of order, and is but slightly more expensive than the original design. It can be obtained from Shepard & Dudley, 150 William Street, New York. Price of the Leech \$9.00; price of the Leech with cylinders in case \$15.00.

